Coral Reef Fisheries Use Theme

Case study: Ornamental Fish Trade in Puerto Rico

BACKGROUND

In 1992, the U.S. imported approximately 8 million marine ornamental fish, yielding a total worth of $8.9 million (Wood 2001). Wood (2001) estimated the global import value of freshwater and marine ornamental fish to be $28 - $30 million per year with USA as the principle buyer. Exports from Puerto Rico began in the early 1970s, but were suspended in 1999. However, in 2001 ornamental fish trade resumed at a lower level. Between 100,000 – 200,000 fish are exported from Puerto Rico per year, with an export value of approximately $300,000 (Wood 2001).

Picture of rock beauty.
Photo by A. W. Bruckner

THE FISHERMEN

Currently, there are approximately 29 ornamental fish collectors on the island who export coral reef species. Others concentrate on the local market and sell to pet stores in Puerto Rico.

- Ojeda, Aguilar-Perera, and Matos-Caraballo (Nov 2001) found that there were 8 principle ornamental fish export businesses in Puerto Rico until 1999 when the number of exporters dropped to 3.
- Puerto Rico's ornamental fish collectors face competition from South FL, Haiti, Dominican Republic, and Honduras. Main collection areas: Isabela, Aguadilla, Rincón, Cabo Rojo, Lajas, and Ponce.

THE GEAR USED

Currently, hand-held slurp guns, dip nets, and fence nets are the most common gear used to collect ornamental fish. Quinaldine, the most commonly used chemical agent, has also been used around the island.

Article 13 of Puerto Rico's Law 278 prohibits the use of chemicals to catch fish in "water currents", which the Department of Natural and Environmental Resources (DNER) interprets to mean currents in streams as well as in the ocean, however the "possession" of quinaldine is not illegal. Quinaldine is a coal tar derivative used in the manufacture of dyes and explosives. It anesthetizes reef fish, lobsters, and other invertebrates, and makes them easier to collect. More research is needed to determine the impacts of quinaldine have on survival rates of surrounding organisms including coral.

SPECIES HARVESTED[1]

The top 10 ornamental fish exported from 1998 – 2000[1] include[2]:

Common Name	Scientific Name	Percent Harvested	Total Harvested	Individual Price	Total Revenue
Royal Gramma	*Gramma loreto*	42%	37,560	$2.00	$75,120
Yellowhead Jawfish	*Opistognathus aurifrons*	10%	8,469	$3.50	$29,641
Blue Chromis	*Chromis cyanea*	4%	3,548	$2.25	$7,983
Redlip Blenny	*Ophioblennis atlanticus*	4%	3,414	$2.25	$7,682
Rock Beauty	*Holacanthus tricolor*	4%	3,157	$8.00	$25,256
Green Banded Goby	*Gobiosoma multifasciatum*	3%	2,759	$2.25	$6,208
Blue Tang	*Acanthurus coeruleus*	3%	2,171	$6.00	$13,026
Horned Blenny	*Hypsoblenniusexstochilus*	2%	2,156	$3.00	$6,468
Bluehead Wrasse	*Thalassoma bifasciatum*	2%	2,109	$2.25	$4,745
Pygmy Angelfish	*Centropyge argi*	2%	1,802	$4.00	$7,208

[1]Information provided from a presentation of Ojeda, E., Aguilar-Perera, A., and D. Matos-Caraballo, (2001) titled "Current Status of the Wild Marine Ornamental Fish Trade in Puerto Rico."
[2]110 other species (24%), including French Angel, Spotfin Hogfish, Pudding Wife, and Queen Triggerfish, among others (Wood 2001).

Picture of butterfly fish. Photo by A. W. Bruckner.

[1] Although this fact sheet does not discuss the trade of marine invertebrates, over 100 species of marine invertebrates are exported as well.

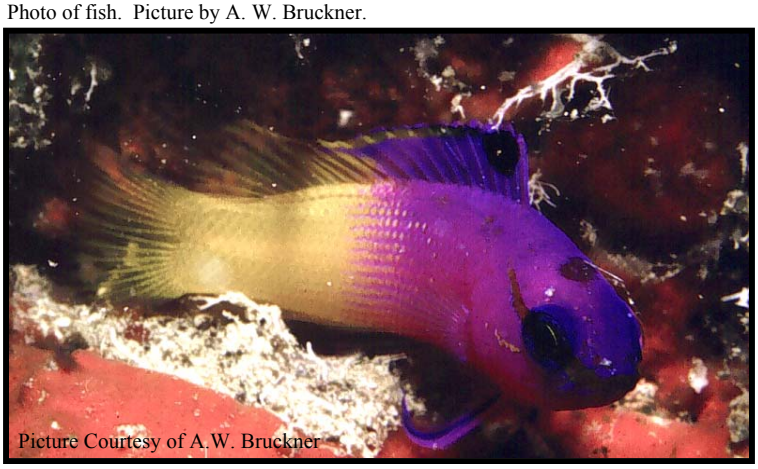
Statistics on species harvested:

Total number of fish exported from Puerto Rico over a 3-year period by exporter[1]:

Exporter	1998	1999	2000[2]	Total
A	23,698	20,093	15,692	59,483
B	5,629	5,812	6,660	18,101
C	4,534	878	210	5,622
D	2,966			2,966
E	867			867
F	787			787
G	450			450
H	130			130
Total	39,061	26,783	22,562	88,406
Total Economic Value[3]	$130,321	$87,221	$75,059	$292,602

[1]Information provided from a presentation of Ojeda, E., Auilar-Perera, A., and D. Matos-Caraballo, (2001) titled "Current Status of the Wild Marine Ornamental Fish Trade in Puerto Rico."
[2]Fisheries Closed August – December 2000
[3]Average price per fish for 1998 – 2000: $3.31

Photo of fish. Picture by A. W. Bruckner.



Regulations Concerning Ornamental Fish Trade

ISSUES/CHALLANGES

Law 278 (Nov 1998) was the first law that required fishing permits and licenses in P.R. Some of the principal marine ornamental fish collectors claimed that they were not aware of this law when it was passed. In addition, the regulations associated with Law 278 have not yet been passed, adding constraints to the implementation of the law and confusion among the users.

Law 147 (July 1999), the Coral Conservation Law, suspended ornamental fish collecting and transporting. There is an issue with the interpretation of the word "organism". Since the word "fish" was not explicitly used in the language of Law 147, some collectors claim that "organisms" do not include fish and that they are being unjustly discriminated against.

In 2001, a number of ornamental fish collectors in the southwest region of the island viewed permits for commercial ornamental marine fish collection as too limiting and unjust.

Census data on the species harvested is needed to better understand how to sustainably manage the resource and the industry.

Picture Courtesy of A.W. Bruckner

Photo of butterfly fish. Photo by A. W. Bruckner

FUTURE DIRECTIONS

Objectives of various fish collectors in SW Puerto Rico:

- Marine Aquarium Council (MAC) certification[2] for P.R. They believe that this would result in increased sales and better quality, which would allow for economic security.

- Recognition of the marine ornamental fish trade as a commercial activity in Puerto Rico so that fishermen are able to obtain commercial fishing licenses.

Tank-raised fish is a million dollar investment. Aquaculture is one solution, but only a limited number of species can be raised successfully at this time.

DNER's Objectives:

• Regulate the collection and exportation of ornamental fish and invertebrates in accordance with pertinent regulations and legislation.

• Develop management guidelines that ensure the harvest of ornamental reef fish is sustainable, and without impact to the coral reef resources.

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[2] The Marine Aquarium Council advocates 3 main actions: best collection practices, best transportation practices, and best management practices. For more information, visit: http://www.aquariumcouncil.org/

References

Wood, Elizabeth. 2001. Collection of Coral Reef Fish for Aquaria: Global Trade, Conservation Issues and Management Strategies. Marine Conservation Society.

Ojeda, E., Aguilar-Perera, A. and D. Matos-Caraballo. 2001."Current Status of the Wild Marine Ornamental Fish Trade in Puerto Rico." Unpublished presentation.

NOAA Fisheries